

## **REMARKS**

Favorable reconsideration and allowance of this application are requested.

### **1. Discussion of Amendments**

By way of the amendment instructions above, claims 30-32 have been revised so as to change "AB<sub>m</sub>" to "AB<sub>2</sub>" and thereby conform to the nomenclature of independent claim 25. Claim 25 has also been revised so as to delete the term "one or more" with reference to the building blocks AB<sub>2</sub> to clarify that the hyperbranched polymer is made up of the building blocks AB<sub>2</sub>, which building block AB<sub>2</sub> is glycidol.

The objections raised against claims 30-32 are therefore believed to be fully addressed by such claim amendments.

Following entry of this amendment, claims 25-32 and 34-36 will remain pending herein for consideration. Favorable reconsideration and allowance of such pending claims is requested.

### **2. Response to 35 USC §103(a) Rejections**

The Examiner has again raised numerous rejections against the pending claims under the auspices of 35 USC §103(a) based on various combinations of the following publications: Tournilhac (USP 6287552); Keller et al (USP 6143850); Magnusson et al (USP 6617418); Haag et al (*J.Am.Chem.Soc.* 200, 122, 2954-2955); Sunder I (*Macromolecules*, 2000, 33, pp 309-314); and Sunder II (*Macromolecules*, vol. 33, No. 21, 2000, pp 7682-7692). As will become evident from the following discussion, none of the rejections advanced against the pending claims under 35 USC §103(a) is appropriate.

**A. Rejection of Claims 25-29**

The Examiner rejects the subject matter of claims 25-29 under 35 USC §103(a) based on a combination of Tournilhac et al. and Keller et al.

Tournilhac et al. disclose the use of a dendritic polyester polymer in cosmetic or dermatological topical compositions (column 1 lines 7-11). As an initiator compound, i.e., the central unit around which the dendritic structure will be constructed, glycerol is mentioned (column 3, lines 33-54 and column 4, lines 4-8).

Thus, the Examiner argues that the dendritic polymers disclosed in Tournilhac et al. may comprise one glycerol monomer and therefore these polymers fulfill the limitation of claim 25 reciting that one of the building blocks is glycidol.

With the above amendments to pending claim 25, however, it has been clarified that the hyperbranched polymer comprised in the cosmetic compositions defined thereby is a polycondensation or polyaddition reaction product of building blocks AB<sub>2</sub>, which building block AB<sub>2</sub> is glycidol. Consequently, the hyperbranched polymers as used in the compositions of the present application made up of glycidol are distinctly different from the polymers that are taught by Tournilhac et al comprising one glycidol.

Therefore, withdrawal of the rejection advanced against claims 25-29 based on Tournilhac et al is therefore in order.

**B. Rejection of All Other Remaining Claims**

The Examiner rejects the remaining pending claims herein as allegedly obvious under 35 USC §103(a) based on several combinations of the above-cited publications.

The comments with respect to Tournilhac et al are equally germane here. Specifically, Tournilhac et al teach the use of dendritic polyester polymers in cosmetic or dermatologic topical compositions (column 1, lines 7-11).

Keller et al relate to lipophilic polymeric UV absorbers based on benzoic acid derivative chromophores and cosmetic compositions with polymer-bound benzoic acid chromophores for protecting the skin and the hair from UV radiation (column 1, lines 3-7). The polymers disclosed are only linear polymers (column 1, line 55 to column 2, line 10). The polymers are prepared by subjecting the monomers to free-radical polymerization under customary conditions (column 5, lines 46 to 49). Hyperbranched polymers are not mentioned or contemplated in Keller et al. Nor does Keller et al suggest using different polymers to those specifically disclosed.

Thus, the combination of Keller et al with Tournilhac et al does not lead the ordinarily skilled person to the subject matter of the present application.

The examiner apparently recognizes such deficiencies as he then cites Magnusson et al. and Haag et al. Neither is pertinent to the presently claimed invention.

Magnusson et al. disclose hyperbranched dendritic polyethers based on oxetane.

Haag et al disclose that for the preparation of hyperbranched aliphatic polyether polyols only two monomers would be known, i.e. oxetane and glycidol. Only glycidol would be commercially available (Haag et al., page 2954, left column, last sentence of second paragraph).

The Examiner states that Tournilhac et al. would teach hyperbranched polyester polyols, but the hyperbranched polyesters disclosed by Tournilhac et al. fail to fulfill the pending claims which require a hyperbranched polyether from glycidol building blocks. Magnusson et al. would teach that the dendritic polymers have no entanglement and low viscosity in bulk compared to linear polymer (column 1, lines 20-29). Magnusson et al. would further teach that like hyperbranched polyesters, hyperbranched polyethers could be functionalized and would be less susceptible to hydrolysis, more flexible in the main chain and can be more easily purified by simple precipitation than corresponding

polyesters (column 2, lines 1-14). Magnusson et al, would disclose hyperbranched polyethers prepared from oxetane (column 2, lines 31-33).

Like Magnusson, Haag et al. disclose hyperbranched polyethers which have multiple reactive chains and teach that hyperbranched polyether polyols can be prepared from either oxetane or glycidol, but that only glycidol is commercially available. The Examiner concludes that in view of the teaching of both Magnusson et al. (motivation to replace "polyester" with "polyether") and Haag et al. (polyether from glycidol superior to polyether from oxetane), it would have been obvious to one having ordinary skill in the art to substitute Haag's hyperbranched polyglycerol for Tournilhac's hyperbranched polyester in order to lessen susceptibility to hydrolysis, increase polymer chain flexibility and simplify purification as well as control of molecular weight and polydispersity. The Examiner further asserts that Keller et al. have taught that polymer-bound chromophores, which are based on p-benzoic acid derivatives, could be covalently linked to polymers. In view of such analysis, the Examiner has concluded that the claimed subject matter is unpatentably "obvious" under 35 USC §103(a).

The analysis of the Examiner is, however, respectfully refuted. Specifically, the Examiner bases his obviousness rejections on several combinations of the above-cited references. However, it should be noted that none of the cited references teaches or directs to the specific combination of the present application, i.e., to covalently link p-aminobenzoic acid derivatives as UV-chromophores to hyperbranched glycidol-based polymers.

The cited references rather disclose single isolated aspects of the combination of the presently claimed invention, but provide no hint or direction at all to combine the features in order to arrive at the subject matter of the presently claimed invention. The arguments provided by the Examiner start from and are based on the knowledge of the present application and therefore seem only to be based on hindsight. The Examiner, obviously is aware of this fact and additionally cited Magnusson et al and Haag et al. in

order to provide a "link" between the unlinked teaching in the further cited prior art documents. However, neither Magnusson et al. nor Haag et al. relate to such specific combination, nor cosmetic compositions at all, nor to UV-chromophores, not to mention p-aminobenzoic acid derivatives as UV-chromophores.

Further, Tournilhac et al. only teach to use polyester polymers in cosmetic or dermatologic topical compositions. Thus, Tournilhac et al. can only teach to the skilled person that these polyester polymers are suitable for cosmetic compositions, in particular sunscreens. Magnusson et al. disclose that polyethers are less susceptible to hydrolysis, however, there is no hint in this document, whether polyethers can be used in cosmetic compositions at all or whether these polyethers may replace polyesters in said cosmetic compositions, in particular sunscreens. Thus, the skilled person had no incentive from Tournilhac et al. in view of Magnusson et al. to replace the polyester polymers by polyether polymers in cosmetic compositions, in particular sunscreens.

In view of Keller et al. the Examiner repeatedly argues that this document teaches a covalent linking of the p-aminobenzoic acid derivatives to polymers. This is not correct. Keller et al rather suggest preparing polymers by subjecting the monomers to free-radical polymerization under customary conditions (column 5, lines 46-49). Under these conditions the monomeric chromophores are randomly inserted into the polymer, but are not covalently linked to the ends of said polymers. Only in the general introductory part of Keller et al. it is mentioned that in order to increase water-resistance in case of cosmetic sunscreen compositions which are applied to the skin it may be possible to link the UV-absorbing groups covalently to the polymer (column 1, lines 15-16). However, this teaching concerns a general approach and not the specific approach as suggested by Keller et al. who teach to prepare the polymers by free-radical polymerization such that the UV-absorbing monomers are inserted into the linear polymer chains. Only in this specific context of free-radical polymerization are p-amino acid derivatives are mentioned – not a covalent linking as the Examiner has erroneously asserted. Hyperbranched polymers, and polymers having p-amino acid derivatives

covalently linked to the ends, respectively, are simply not mentioned nor contemplated by Keller et al.

Consequently, none of the cited prior art documents provides any hint to the claimed subject matter of the pending application to apply p-amino acid derivatives as UV-chromophores covalently linked to hyperbranched polyglycidol-based polymers. The teaching of the cited prior art documents rather is either totally unrelated, e.g. as different polymers are used for different purposes, or even incompatible, as the UV-chromophores are introduced into the polymers instead of covalently binding them at their ends. Thus, the subject matter of the present application cannot be obvious in view of the various combined teachings of the cited publications.

Withdrawal of all rejections advanced under 35 USC §103(a) is therefore in order.

### 3. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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